



Scientific discoveries this week

Jake Rezac, Content Manager

Chicago, IL: New research from the University of Chicago explains how an algorithm based on Google's Page Rank – the algorithm which determines the importance websites presented for a given search – can be used to model food web collapse. With humans and other animals often making changes to ecosystems, it can be hard to determine any negative effects. The new algorithm, however, determines outcomes very well and efficiently. The researchers explained that it works as well as the best known algorithm, but takes much less time.

Amsterdam, The Netherlands: Scientists from the Netherlands Cancer Institute have discovered how T-cells work to help the immune system, research which may inspire more effective medicines. T-cells are each programmed differently, and it may be that only 1 in 100,000 will help with a specific pathogen. The research shows that it is the amount of T-cells created after they begin to attack the pathogen which determines the strength of the immune system, rather than the initial number of T-cells which attack.

Cape Canaveral, FL: Astronauts have begun work on the final node to be attached to the International Space Station (ISS). The astronauts are laying power cable in anticipation of the ISS's final node, Tranquility, which will be attached in February. Included with the last node will be material for a Russian docking module and equipment for a particle physics experiment.

Sydney, Australia: Researchers at the University of New South Wales have determined that vaccinating women against the human papilloma-virus (HPV) may help to prevent breast cancer. The researchers have found that strains of HPV, which causes nearly all cases of cervical cancer, are often present in breast cancer cells. Researchers around the world have linked HPV to breast cancer, but disagree on how often the two are related. Scientists hope that these new findings will help the millions diagnosed with breast cancer each year.

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ASSOCIATED
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Headlines from around the world

Emily Trudell, Staff Writer

Jaycee Lee Dugard, who has been missing for the last 18 years after being kidnapped as an eleven-year-old, was found alive after spending years in captivity with alleged abductors Philip and Nancy Garrido. Dugard was found to have two daughters, aged 11 and 15, both fathered by Garrido.

Jonathon Ayers, a pastor at a northern-Georgia Baptist church was shot and killed after hitting a police officer with his car while driving with a suspect in a drug sting. Although nothing illegal was found in Ayers's car, it is suspected that the pastor was taking part in a drug transaction.

The Democratic Party of Japan has proposed a plan that would pay parents \$3,400 (US) per year per child until the child reaches high school age. It is expected that this plan, if passed, could increase Japan's birthrate, which is one of the lowest in the world. Currently, roughly one fourth of the population of Japan is over the age of 65.

Twelve bombings in Iraq killed at least six people and wounded roughly 85 more. Eleven of the bombings occurred in the evening, when streets are busiest during the holy time of Ramadan. Another bomb exploded outside of a Shiite shrine.

The United States Treasury announced changes to old legislation that will make it easier for Cuban-Americans to contact relatives still living in Cuba. These changes allow for telephone communication with non-Cuban providers, and for family members to visit relatives still living in Cuba.

Ten weeks after his death, pop star Michael Jackson was buried at his final resting place in a cemetery in Glendale California. Along with Jackson's three children and other members of the family, the funeral was attended by Jackson's ex-wife, Lisa Marie Presley, and stars such as Elizabeth Taylor and Stevie Wonder.

Michelle and Jim Bob Duggar, stars of the TLC television show "18 Kids and Counting" announced that they are expecting their nineteenth child, stating that each one is a blessing.

The government reported that unemployment has reached a 26 year high, climbing to 9.7% since August 2008. Though the amount of job losses decreased in August relative to earlier months this year, 6.9 million jobs have been lost since the beginning of 2008.

Isaac Owusu, an 18-year-old Vermont teen, will serve 90 days in prison of a two year sentence, after texting two teenaged girls, prompting them to send him lewd videos and pictures of themselves performing sexual acts. This was the state's first "sexting" case, and Vermont lawmakers have decided to decriminalize "sexting," allowing for the sexual assault charges against Owusu to be dropped.

As part of a campaign for Ride 2 Recovery, a charity program that supports wounded veterans, a dinner date with former Alaska governor Sarah Palin is being auctioned off. The bidding begins Tuesday with a starting bid of \$25,000 for a dinner for five, and the auction will be open for ten days.

Local News

Comcast customers rejoice: download speeds have doubled because the company has deployed wide-band technology in the Denver-Metro area.

Mines was placed 34th in the Top 50 Public Universities and 77th in the Best National Universities by US News and World Report.

The site of the former Hall of Justice is reportedly slated to house part of a new Earth Energy Institute complex. A grant request has been submitted to the National Institute of Standards and Technology for \$18 million to build a new laboratory on the site.

Bidding for construction on the expansion to Brown Building is expected to begin in December.

CSM's Men's Soccer team christened the brand new soccer field with a 5-1 win over the Northwest Nazarene Crusaders.

CSM's Women's Soccer team is currently tied for fourth in the NSCAA Central Region rankings.



CSM to change e-mail service soon

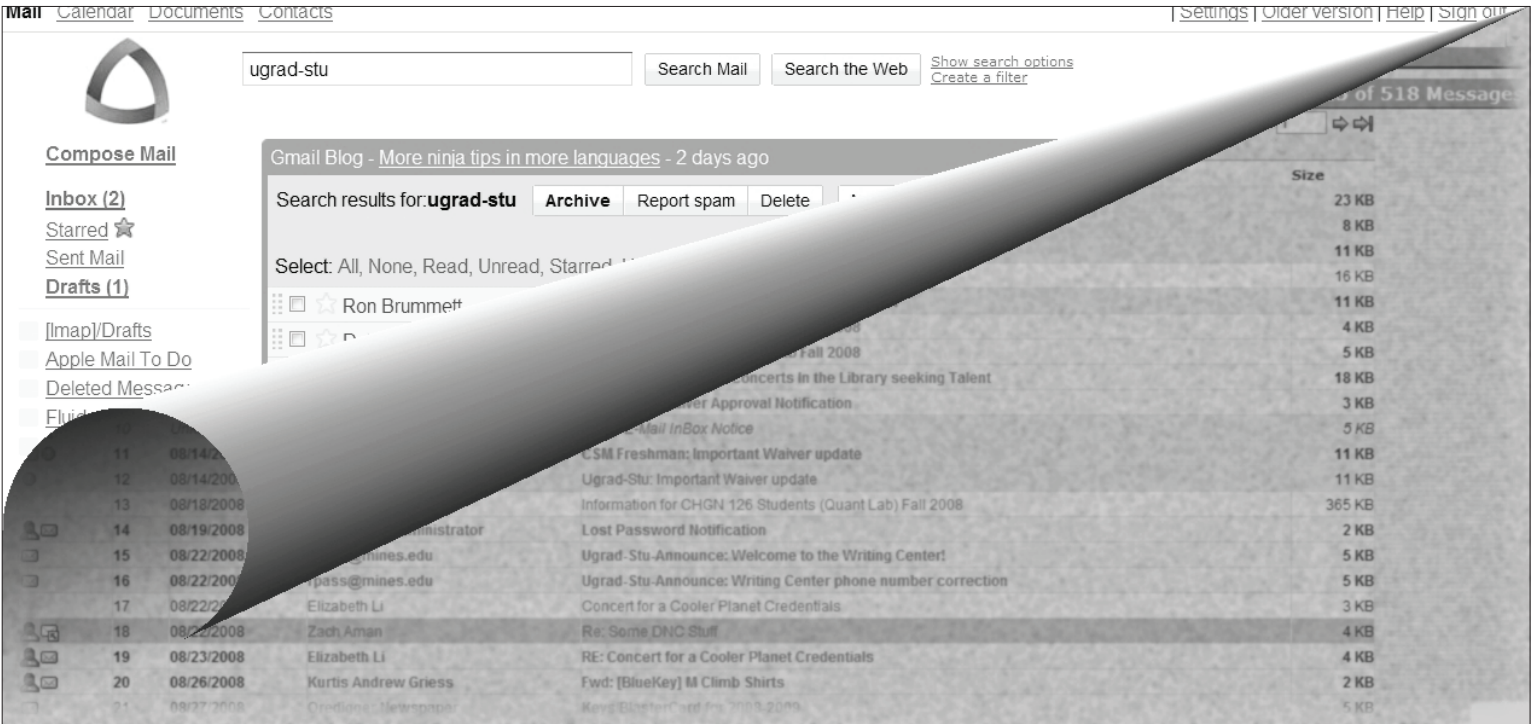
Tim Weilert
Content Manager

Anyone who is familiar with the current Mines webmail service will tell you that the system is rather archaic. Editorials have been written, accounts have been POP'd, inboxes have been filled to the brim, outages have happened, and the on-campus e-mail clusters have run their course.

David Lee, director of enterprise systems for CCIT, is a man on a mission. His goal is to migrate the entire campus from its current webmail service to a new Google-powered system called MyMail. Lee addressed ASCSM at their first meeting of the year, and later sat down with the *Oredigger* for a discussion on the change.

"E-mail has really become a ubiquitous service," began Lee, "It's not like the old days." CSM, as it turns out, has been sluggish in outsourcing its e-mail. CU, CSU, Western State, and community colleges have already made the switch to third party providers such as Google and Microsoft.

Lee detailed the history of the e-mail cluster, describing a constant uphill struggle of managing simultaneous connections and constantly upgrading hardware. Why did e-mail become such a bother? Trends in e-mail have taken various forms, but it seems that current mobility played a role in CSM's decision to switch. "We started getting mobile devices and people began checking their e-mail from multiple locations. Because of Facebook



Coming Soon. A sneak peek of how Mines email will soon look.

TIM WEILERT / OREDIGGER

and other social networks, people wanted to check more often, so the demand for the system became greater," said Lee.

So, why did Mines choose Google? "There was a clear-cut preference for students wanting Google," said Lee, "We had over 10 times the number of students forwarding e-mail to Gmail than any other vendor out there."

Staff and faculty will be provided with a different system: Exchange, a Microsoft product with integrated calendar and schedule features. Lee noted Exchange's easy integration with Blackberries and

iPhones as a further reason for that decision.

Undergraduate and graduate students will be provided with new Google-powered accounts, and should expect the following:

- Migration will occur according to a posted schedule, which is currently pending approval.
- When the time comes for migration, students will receive an e-mail at their @mines.edu address. This e-mail will outline details of how to make the switch.
- For a period of time both accounts will be active, with old messages transferring to the MyMail

account.

- Finally, the old webmail account will become inactive. All incoming mail will be diverted to the MyMail account.

One downside of the switch to Google is the issue of backup. Under the old system, CCIT could help users recover accidentally deleted e-mails, however under the new system once an e-mail is deleted, it is gone forever.

However, students need not worry about losing any mail from people sending messages to their @mines.edu addresses. Alias accounts for every @mines.edu ad-

dress will transfer mail to the new account. This means that business cards and resumes don't need to be reprinted. Furthermore, once students graduate from Mines, they will be able to set up an alumni e-mail account, and work under the Mines domain after leaving the school.

In closing, Lee stressed the need for students to stay informed on the change. Watch campus postings, future issues of the *Oredigger*, and keep an eye on your inbox.

There is also a website up at <http://ccit.mines.edu/email/my-mail/> with a lot more information.

Moving forward

Kaneesa Felton
Staff Writer

The Colorado School of Mines has been a state institution since 1876. Very few courses were offered in the early years, such as chemistry, metallurgy, geology, mineralogy, mining engineering, botany, math, and drawing. The main focus during those times was gold and silver. But as the institution grew, the fields expanded to include the ones we have today.

The Colorado School of Mines is still continuing to grow, and there are many plans that the administration is hoping to put into place in the distant future. Dan Fox, Dean of Students, stated that not only do they want to create new programs, but also coordinate the new programs with the old. There are a lot of duplications between the different programs, and the academic administration wants to decrease these replications and join all the efforts together as a whole. This will provide the students with a better education and learning experience.

In accordance with a better academic experience, the administration hopes to make college life a better experience as a whole. This includes improvements on the residential halls and potentially building new ones. Fox wants the students to be able to say, "School of Mines is my home." He implies that Mines should be a second home to students, a place of comfort. He wants to create a stronger community and get the students more involved by implementing new extracurricular activities and social

events. A visioning committee has been set up by the new Provost, Steve Castillo, among many others, to oversee these changes and envision what these changes specifically need to be.

These changes will not be easy. Fox believes that everyone needs to contribute to make these changes possible. By contributing, the students and faculty will "get out what they put in." They will be able to enjoy their time at Mines better and make the most of their experience. Feedback on these projects is already being perceived as positive. "These are changing times," said Fox. He hopes to be able to keep those quirky little traditions that other schools secretly desire, like the annual M-Climb and E-days, alive while adding in some more modern customs. "These are meaningful processes and programs," Fox states.

Of course, it will be a different campus with these changes, but Fox doesn't see it like this. "We're creating a mosaic," he says. By "mosaic," Fox means putting different pieces together, some new and some old, to form a bigger, greater picture. "This is [a] truly holistic view," he stated. And of course it will be rough. It will be "challenging and worthy and exciting at the same time." Mistakes will be made. But this is a part of the learning process. And of course some people will be opposed to the ideas taking place. There won't be complete agreement. But this is a positive change, a good change. As said best by Fox, it's taking "the best of what we had and moving forward."

The Executive Lecture Series Presents

J. Michael Yeager

Chief Executive, Petroleum
BHP Billiton Petroleum



"Resourcing the Future: Keys to Opening New Doors in the Petroleum Industry"

Wednesday, September 23, 2009

4:00 to 5:00 p.m.
Reception to follow

Colorado School of Mines
Green Center, Metals Hall
924 16th Street, Golden, Colorado

RSVP by September 18, 2009

Email patricia.bohner@is.mines.edu
Phone 303.273.3135



The fall of the Hall of Justice

Alec Westerman
Staff Writer

Last May, before school let out, the Hall of Justice stood in what is now a pit between the CTLM parking lot and the former Hall of Justice parking lot. Construction equipment and piles of dirt and concrete now stand in place of the building.

Mike Bowker of Capital Planning and Construction provided insight into the details of the demolition. He cited several reasons for the demolition of the Hall of Justice. "A lot of asbestos" was one, but he also cited expensive upkeep, failing masonry, and mold.

The demolition process, according to Bowker, "started with abatement...[in] winter 2008. [Demolition began] around the first of June."

The demolition process involved a vehicle with I-beam cutting jaws mounted on a long arm. The long arm methodically smashed away at masonry and cut through I-beams, working top to bottom, removing section after section of the building.

All the while, a fire truck sprayed water toward the work to mitigate dust. Another large vehicle equipped with a scoop later arrived to move about rubble and to clear debris from the basement. Smaller vehicles moved and sorted the building's remains so that trucks

could cart it away.

"We don't proscribe means and methods for contractors," Bowker explained, though he acknowledged that demolition by explosives was the hope of many students. He also noted that it was more cost effective to use the approach taken.

Now, all but crushed concrete is gone. This concrete is to fill the hole left by the basement of the former Hall of Justice. When the hole is filled, landscaping will be the last major step before completion. Bowker indicated that work in the area is expected to be completed "in general terms, [by] early fall."

Bowker described another benefit of the method used; "We're going to recycle about 90% of the building." The hole that used to hold the Hall of Justice basement and foundation will be filled mostly with the remains of the building itself. Planners hope that this act might score points for LEED, Leadership for Energy and Environmental Design.

Bowker described the proposed changes to the area of campus that used to house the Hall of Justice; "That part of campus is in flux." When completed, he explained, the new Earth Energy Building (EEB) will overlap into the CTLM parking lot. The construction date for the EEB depends on whether stimulus money was approved for the process.



ALEC WESTERMAN / OREDIGGER

Mines upgrades network

SCONE, WAFER, and the better, faster, stronger network

Ian Littman
Assistant Webmaster

Mines's computing center has been busy over the summer. From a name change (what was Academic Computing & Networking is now Campus Computing and Information Technology, or CCIT) to the widespread testing of Mines's new Gmail-powered "MyMail" e-mail system, the class of 2013 is getting a different technology experience than classes before. However, there's one upgrade that trumps the others in today's internet-connected society: Mines's connection to the internet is now pretty much future proof.

The network upgrade, five years in the making and a partnership between Mines and the Colorado Department of Transportation (CDOT), went partially live a few weeks ago. The upgrade was technically about six months behind schedule. However, considering the scope of the project, which relied in no small part on volunteer labor, such a delay was somewhat expected.

The new gigabit connection, which will be upgraded to ten times that capacity by the end of the year, replaces a comparatively paltry 155 megabit leased line via Qwest between Mines and the Front Range GigaPOP Front Range GigaPop (FRGP), Colorado's research and education network nexus. The new connection will allow for access to such resources as Mines's supercomputer from outside the campus network at on-network speeds for researchers, and will also alleviate everyday internet congestion issues that were making themselves increasingly evident over the last few semesters.

Mines will keep Qwest around as a backup connection, running a 100-megabit link from the Green Center in addition to the Mines fiber terminating in the CTLM.

"We are calling our project WAFER, for Western Area Fiber for Education and Research," says Phil Romig, Associate Director for CCIT, of the new fiber route. "I wanted to call it WAFFLE to go with the SCONE but couldn't come up with [an expansion of the acronym]." SCONE, or the Southern Colorado Optical Network for Education, currently ties into WAFER to provide the last few miles of cable to the FRGP. WAFER's current paths run along 6th Avenue and Interstate 70 to Interstate 25, though the plan is to bring the network all the way to FRGP's location at CU Denver by the end of the year.

At that point, SCONE will lease capacity on WAFER, taking a more direct route to the FRGP than the current one-gigabit path, which goes through eastern Denver. At that point, Mines will have ten gigabits of network capacity to the FRGP, and SCONE member institutions, among them CSU Pueblo and CU Colorado Springs, will also have more capacity to spare. Another result of these build-outs is that Mines will have no fewer than four alternative paths to the internet, though all but the Qwest backup connection will require a day or two to turn on in the event of a primary-link outage.

Yet even a gigabit of capacity to the internet can be swamped by BitTorrent and other such applications. To that effect, Mines has swapped out their old, "leaky" Packeteer traffic shaping equipment for new Cisco gear, which employs deep-packet inspection techniques to limit peer-to-peer apps to a small slice of Mines's network capacity. "If we turn that off we flood the one gig link pretty quickly," says Romig of the network situation. "A good BitTorrent client... has a reasonable shot at 30-40 [megabits per second] all by itself, and I've got [lots] of them over at the residence

halls. That just protects the campus network against floods."

On the upside, Mines doesn't block this type of traffic entirely, and the bandwidth shaping apparatus is not meant to itself crack down on copyright infringement. "It's not a copyright protection tool. It's not a policing device. It's just bandwidth management," says Romig. "There are perfectly legal reasons to use [BitTorrent] and there are illegal reasons to use that technology. Thus far we have tried to avoid policing by banning a protocol."

One other note is that Mines's links to Qwest and Level3 (so-called "commodity traffic") are capped at sixty megabits per second. That said, connections to Internet2, National LambdaRail, Denver's Confluent internet exchange, and the increasing number of networks that interconnect with those networks ("peering" in network parlance) run at full throttle, and at this point a significant portion of Mines traffic runs over those links. Comcast also provides a direct connection between cable subscribers and Mine via the FRGP, and that gigabit connection isn't capped on throughput either. Thus, for all intents and purposes, most downloads will go as fast as the Mines local network, which runs at a gigabit between buildings and at either 100 megabits or a gigabit on wired desktops depending on researcher need.

The most amazing thing about the network transition from Qwest to WAFER was its seamlessness, thanks to CCIT staffer Colin Randall. "Switching over to this was very complicated from a network point of view," says Phil Romig of the transition. Yet "the morning we did the cutover [Randall] managed it so that, as near as we could tell, we didn't drop a single [data] packet... He spent a lot of time, worked really hard on it, and did a really good job."

In with the new for Mines

Andrew Aschenbrenner
Staff Writer

Students returning to classes after the summer break might have noticed some changes around the Student Center. While the most obvious change may be that the BlasterCard Office has moved downstairs from the second floor, a myriad of staffing moves and position changes has occurred.

When Harold Cheuvront retired this past spring after nearly three decades serving the school, including 20 years as Dean of Students, some changes were needed because of the growing student population.

The Department of Student Life, together with the Student Activities office, have gone through a reorganization with the intention that students will continue to benefit from effective student services. "This new structure allows us to continue to respond efficiently to student needs. It also puts people in positions that align with their strengths," said Derek Morgan, the Director of Student Activities and new Associate Dean of Students.

Dan Fox, who has stepped into the roles of Vice President for Student Life and Dean of Students, revealed that Cheuvront was responsible for directly overseeing twelve areas of campus services, and had considered splitting his duties in the past. "With the changes, we have

split those duties up" because they were "growing beyond the job."

One of these changes is that the BlasterCard office is now under the umbrella of Student Activities instead of Student Life. "With anything you want to do on campus, the BlasterCard office is a part of it. Moving down to Student Activities gives us a more centrally located office to serve students," explained Bob Mask, Director of Campus Card Services.

Another big change to the Student Activities office is the addition of a new position, Associate Director of Student Activities for Student Organizations. This position will be filled by recent hire Travis Smith, who will join the office October 1. "Travis will bring new ideas and be able to devote more time to serving student organizations," said Nanci Bliss-Kelley, a Program Assistant in Student Activities who currently assists with the management of club accounts. "The addition of Travis is a good thing," said Morgan. "He will be able to focus on student organizations as a whole."

Previously, the overseeing of student groups was split into multiple positions. The new Associate Director will now advise the Board of Student Organizations (BSO) as well as both the Panhellenic and InterFraternity Councils, which are the governing bodies for Greek Life on campus.

"I think it beneficial to have Greek Life in one position again," stated

Marie Hornickel, who used to advise the Panhellenic Council in the former position of Assistant Director of Student Activities. Added Morgan, who formerly advised the InterFraternity Council, "With the changes in Student Activities, we're adding more student support staff, which allows us to better meet the needs of students."

Hornickel's new title is Associate Director of Student Activities for Campus Programs and her new duties include organizing Parent and Student Orientations. "I'm excited for the new opportunities that come with the structure changes," she said.

While taking on new duties and passing on others, Morgan will continue to advise the Associated Students of the Colorado School of Mines. "My job now is working with student government and with issues related to student conduct, like readmission," he explains.

While the new positions represent significant adjustments, all involved expressed confidence that the changes mean better services for students. "The time had come where the growth of the institution and the needs of the students required additional staff support," acknowledged Fox. Asserted Morgan, "With the changes in positions and the additional staffing, we are able to provide a fresh perspective on life on campus."

Student Organization Leaders

Have you had your Tier Placement meeting???

Sign up in the Student Activities office today!

Want to learn more about the Tier System?

Want to post events on the Student Calendar?

**Board of Student Organizations Meeting
Tuesday, September 1st @ 6pm
Ballroom B, Student Center**

www.mines.famundo.com

The last chance for a tier placement meeting is Sept 11th. Please contact BSO at csn.bso@gmail.com with any questions.

TECH BREAK

Internet2

Ian Littman, Tech Break Columnist

Mines and other higher education institutions have different, more advanced resources available in terms of network connectivity versus the typical home or business. Mines, through the Front Range GigaPop, does have to buy some internet capacity from standard-issue providers (in the FRGP's case Qwest and Level3). However communications with other universities and an increasing number of commercial providers go through two next-generation networks that make university connections as blazing-fast as they are: National LambdaRail and Internet2.

Both offer state-of-the-art connections between university networks nationwide and, by peering traffic exchange agreements,

"[M]illions of university students [are] using advanced network capabilities today...capabilities that are just now beginning to be seen in the commercial space,"

worldwide. However, according to Internet2's Director for State and Regional Networks Ana Preston, "Internet2 is more than just an advanced network infrastructure - we are an active and engaged community focused on leveraging our collective resources to address the many challenges of building a robust cyber-infrastructure to support continued innovation in research and education."

and solutions in the networking world, like IPv6 and multicasting. IPv6 is the new internet protocol adopted by providers like Google and Comcast to allow for more than the four billion internet addresses provided by the more widely accepted IPv4 standard. Multicasting allows

one sender to send one packet that is duplicated to several recipients, something that's particularly useful when live-streaming events in video or audio form.

These and other such issues are the topic of Internet2 member meetings, which happen on a regular basis. "Internet2 hosts two annual member meetings, two annual technical engineering workshops, several dozen other annual workshops, a multitude of working groups, initiatives and other projects," says Preston of the consortium's community. "[They are] all designed to bring the research and education community together to solve common problems that could not be accomplished by any single institution."

Of course, this doesn't discount the power of the Internet2 network itself, which the FRGP connects to via Salt Lake City and the Utah Education Network (UEN) at ten gigabits per second of capacity. As with the smaller regional research and education networks, Internet2

has enough capacity for such high-bandwidth activities as supercomputer data uploads and downloads and high-quality high-definition video-conferencing across the nation.

Through peering agreements with commercial internet providers (National LambdaRail's TransitRail service, for example, interconnects with Comcast, Time Warner Cable, Google and others) researchers and students alike can also get out to the internet at large at high speeds without educational institutions having to pay per-megabit for a connection.

There are a few tricks Internet2 can do that regular networks can't however. One is ION, a service that allows for bandwidth-guaranteed "network on top of a network" applications. This guarantees network quality for sensitive applications, something that the standard internet can't reliably do. This feature also allows network researchers to test new protocols over production-grade systems without fear of taking their parent institution's network

offline should something go wrong. The motive: "The hope is that this research will result in new innovations in networking that will eventually impact the commercial Internet as we know it today," states Preston.

Last but not least, Internet2 (and university networks in general) gives anyone using it a glimpse into the future of the internet. “[M]illions of university students [are] using advanced network capabilities today... capabilities that are just now beginning to be seen in the commercial space,” notes Preston. “These same students are graduating into the workforce each year and will undoubtedly expect these same technologies at their place of employment or at their homes. This will eventually drive the demand in the commercial space for these types of applications/services and bandwidth requirements.” I for one am looking forward to IPv6-enabled hundred-megabit internet service with no transfer caps and minimal throttling... at a decent price.

5 departments + 6 centers + 14 focus areas = Materials Science

Sarah McMurray
Staff Writer

The Materials Science program here at Colorado School of Mines is not encapsulated in a single department, but rather, spans five departments in an interdisciplinary scope - Chemical Engineering, Physics, Metallurgical and Materials Engineering, Engineering, and Chemistry. It is intended to create scientists who are able to communicate across different fields. Christopher Shealy, who did his undergraduate work in Metallurgical and Materials Engineering, chose to do his graduate degree in Materials Science because he liked that, "It's a pretty open program. I feel you can modify the program to fit you better." Graduate student Laura Pate agreed, saying that "having the ability to tailor the curriculum you take is very valuable in a graduate program."

Materials Science is within the field of Applied Science and Mathematics. Within the program are six centers, which promote inter-

disciplinary interaction. They are the Colorado Center for Advanced Ceramics, the Center for Welding, Joining, and Coatings Research, Advanced Steel Processing and Products Research Center, Advanced Coatings and Surface Engineering Laboratory, the W.J. Kroll Institute for Extractive Metallurgy, and the Center for Solar and Electronic Materials.

There are two graduate degrees offered, the M.S. and the Ph.D.. While every student takes relatively similar core courses for the M.S., Ph.D. courses are determined in part by which focus area a student chooses. The program has fourteen. They are advanced polymeric materials, biomaterials, ceramics, composites, computational materials science, electronic materials, joining science, mechanics of materials, nuclear materials, surfaces & interfaces/films & coatings, enviro-material, mining materials and petroleum materials, non-destructive materials assessment, and materials chemical processing (in preparation). While the website only lists ten focus areas,

the program is always striving to improve, and has recently made updates, adding the additional focus areas. Pate said her favorite aspect of the program was “the flexibility that it offers in terms of classes you can take and focuses you can have.”

But the program is more than academics. Both Shealy and Pate enjoy the working environment as well. Shealy enjoys the classes, professors, and the relaxed, friendly atmosphere. Pate describes it as "by far the friendliest and most supportive department [she has] worked in. There is a large diversity in background and research."

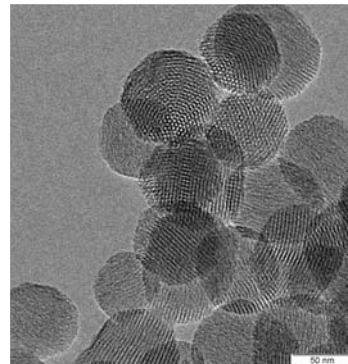
Shealy is studying "a more efficient way to exhaust the energy from coal and trap the contaminants more easily." It's a project he hopes will take him into the engineering field as it relates to economic responsibilities. After all, the project is all about "what you need and why you need it, and if there's a cheaper alternative."

At the other end of the spectrum, Pate is researching "in-

integrating membrane protein functions into a porous membrane." This will have applications in the field of biosensors for pharmaceutical testing. She said, "I wanted to work with non-metallic materials, and working in Materials Science will

give me greater flexibility when looking for a job." A job she hopes to obtain from the degree would be in the industry doing process development and trouble shooting, "in polymers, preferably."

Why polymers? Pate replied, "Polymers are so useful. They're everywhere. From the soles of your shoes to a medical implant. Polymers appeal to me because they make the world a better place."



COLORADO SCHOOL OF MINES FALL 2009 CAREER DAY

TUESDAY, SEPTEMBER 15, 2009

9:30 AM— 4:00 PM

STUDENT RECREATION CENTER

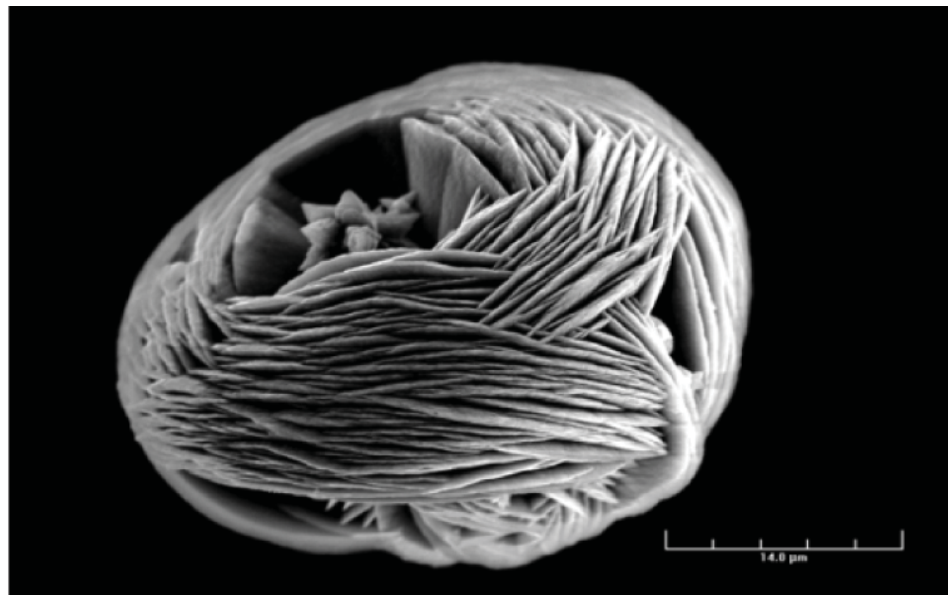
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Melville Fuller Coolbaugh

Gene Duran
Staff Writer

Coolbaugh Hall's namesake, Dr. Melville Fuller Coolbaugh, was a president of the Colorado School of Mines from 1925 to 1946 and president emeritus from 1946-1950. Coolbaugh attended grad school at the University of Columbia. Upon graduating, he served extensively as a faculty member in the chemistry department at numerous colleges, and finally at the nearby Colorado College. During his term as president at the Colorado School of Mines, he was nominated for an honorary degree from the Colorado College in honor of his achievement. The grounds for his achievement, as quoted by then Colorado College President Mierow, were for his "scholarly attributes, business acumen, executive ability, and genial personality."

Coolbaugh had a great deal of experience in many fields, including work in the mining industry as well as chemical research. The CSM library also has a map in the microfiche collection entitled,

"Geologic framework and environmental geology of the Summitville, Colorado acid-sulfate mineral deposit," to which he was a contributor.

Coolbaugh Hall is the home of the Chemistry and Environmental science & Engineering departments at CSM. Construction began in 1950 (after his death that same year) and finished in 1952. The building cost \$1,000,000 to make at the time, and underwent a major renovation in 1995, adding a new wing. This wing contained more research labs, offices, conference rooms, and the comfortable student recreation area.



IAN LITTMAN / OREDIGGER

Fuel goes green

Erin Stephens
Staff Writer

The current state of the world's energy can only be described as precarious. The continued dependence on fossil fuels such as crude oil spurs a continual search for other means of a mass energy source.

One such project exists under the supervision of Dr. Matthew Posewitz, a professor in the Department of Chemistry and Geochemistry. According to Dr. Posewitz, he and a team of four graduate and two post-doctoral students are "trying to find ways that we can come into this next generation of bio-fuel feed stocks." The item up for bid is green algae.

Green algae are water organisms found in virtually every body of salt water in the world. "Because many species grow in salt water, we believe they have a unique niche, because we don't want to use fresh water for lots of bio-fuels" says Posewitz. A fuel source that would grow in a saline water supply would not impact the world's fresh water supply and, therefore, presents no danger to people's drinking supply.

Green algae produce little recalcitrant biomass, such as the stalks, leaves, and roots that feedstocks such as corn produce. There are far fewer complicated structures to break

down in algae, compared to other suggested fuel sources.

The possibility of plants as a fuel source depends almost entirely on their ability to fix carbon. Carbon fixation is the primary source of all energy for human life, both internal and external. It occurs during the Calvin cycle, in which photosynthesis occurs and lipids are produced, along with starches and other organic material. The team has chosen green algae because "they have some of the highest rates of photosynthesis."

Posewitz's team specifically looks at the products of carbon fixation and the electron transport chain. "We have some organisms that we can actually manipulate at this level with ferredoxin, an electron carrier," says Posewitz. "We can drive that to an enzyme called hydrogenase to produce hydrogen gas."

Unfortunately, every project has its complications. With this one, the team has to deal with two photosystems. "This means we can only be 50% efficient," states Posewitz. "The second problem is that light with wavelengths above 700nm, we're just not using." About half of the energy in solar radiation is above 700nm, but this light energy is not used effectively in oxygenic photosynthesis.

See Algae on page 8

Geek of the Week

Alec Westerman
Staff Writer

Why do they call you Danica?
Dan: Our "friend" started it.
Jessica: Apparently, because we're always together... One of our friends started it behind our back and we didn't find out about it until later.

How many people call you Danica?
Dan: Physics majors and a few others.

Is it true that you're always together?
Jessica: Unless one of us has work. We don't go to the bathroom together... I do like my privacy.

Do you consider yourself a geek?
Dan: Yes we do.
Jessica: We like physics.

Do you think others consider you a geek?
Dan: Yes.
Jessica: More Daniel than me.

How geeky is your relationship?
Dan: We geek out with each other.

Do you prefer Microsoft or Mac?
Dan: Linux
Jessica: Linux

Do you have any strange talents?
Dan: I made my Frankencar drive.
Jessica: I've taken over five years of Japanese.

What is the name of your cat?
Dan: μ_0
Jessica: There's soon to be an ϵ_0 we'll call him "epsi."

What is the geekiest thing you own?
Dan: Textbook in General Relativity.

Jessica: I own five video game consoles.

What is the geekiest thing you have done at Mines?
Dan: I was in LUG for a while.
Jessica: I went to a theoretical physics seminar as a freshman.

What is the geekiest thing you have done in your life?
Dan: Derived the Tolman-Oppenheimer-Volkoff equation
Jessica: I did Japan bowl for three years. I also did a TSA competition (Technology Students Association).

Why did you choose to attend Mines?
Jessica: It's a good school, it's in Colorado and it's small.
Dan: Mainly because it's a small, good school and I didn't want to go out of state.

What is your favorite class?
Jessica: Intermediate Mechanics.
Dan: Yep, Intermediate Mechanics

What are your plans for after college?
Dan: Grad school.
Jessica: Grad School.

What are your hobbies?
Jessica: I like to read and hang out with friends.
Dan: Physics, computers, and cars.

What is your favorite type of music?
Dan: I would say progressive rock, like Porcupine Tree, Pink Floyd, Opeth, Tool.
Jessica: I would say happy rock.

What do you listen to your music on?
Jessica: iPod touch
Dan: iPod touch

Why did you choose an iPod touch over anything else?
Dan: "Intarwebs"

...“Danica,” Junior: Engineering Physics (Daniel Wilson and Jessica Denning)

What is something embarrassing about you?
Dan: I'm a male model... no I'm not... What is embarrassing about me... I haven't really gotten that embarrassed about anything I can think of. Except that I ended that sentence with a preposition.

Jessica: I have a terrible fear of needles and stairs... When I was five it took five people to hold me down and administer a shot. I've also fallen down the stairs three times in my life.

If you could take three things with you to a desert island what would they be?
Jessica: Computer with internet, a library, and all the cake I could eat.
Dan: The cake is a lie, computer with internet, a chalk board, and Jessica.

Jessica: Oh! I already assumed we were there together...

If you suddenly came by one million dollars what would you do with it?
Jessica: Pay for school... Buy books.
Dan: Pay for school and buy a new car.

What year are you?
Dan: Third.
Jessica: Third.

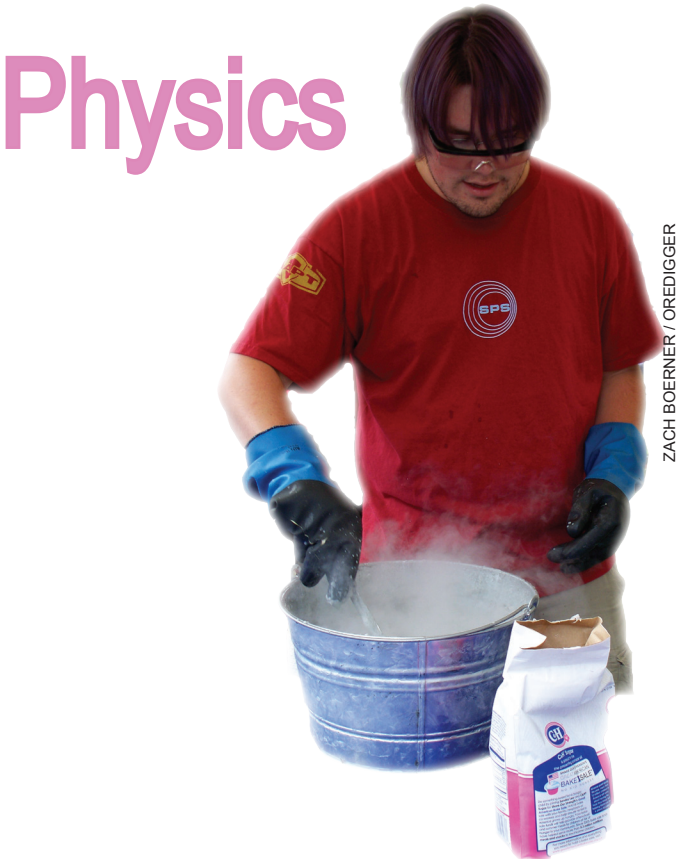
What is your favorite TV show?
Dan: We'll just say quotes and see who will recognize it.
Jessica: "Scruffy, the Janitor."
Dan: "Good news, everyone!"



ALEC WESTERMAN / OREDIGGER

Celebration of Mines

Physics



Society of Women Engineers



Rugby



Band



Robotics Club

Removed the useless cell phone contract. Replaced it with \$500 yr in savings.

Use the savings for pizza, and, well, you know...

UNLIMITED \$45 30-Day Plan

INCLUDES

Unlimited Nationwide Anytime Minutes & Texts

ALL YOU NEED \$30 30-Day Plan

INCLUDES

1000 Minutes PLUS 1000 Text or Multimedia Messages

Plan does not include phone

Straight Talk

Everything you need in a cell phone without a contract.

Only at Walmart or Walmart.com

The 411 on H1N1

Algae: the new miracle fuel?

What's the Big Deal about H1N1 (swine flu)?

To date, the highest number of cases of 2009 H1N1 flu have been confirmed among people 5-24 years old. Students, faculty, and staff can get sick with flu, and institutions may act as a "point of spread." Students, faculty, and staff can easily spread flu to others in their institutions as well as in the larger community.

How is the virus spread?

Just like seasonal flu, it is spread from person to person in respiratory droplets from coughs and sneezes. The virus may also spread when you touch droplets on another person or an object and then touch your mouth or nose before washing your hands.

Therefore to decrease the risk and spread of the virus wash hands frequently, get plenty of sleep, manage your stress, eat nutritious food, don't skip meals and avoid touching your mouth, eyes, or nose.

What are the symptoms?

- Fever greater than 100 F
- Sore throat
- Body aches/muscle aches
- Headache
- Cough
- Chills
- Possibly diarrhea/vomiting

In other words, you feel really, really bad. The flu is usually much more severe than a cold. There have been a few documented cases of the flu in individuals who did not have a fever. This is unlikely but possible.

What to do if the flu gets you!!

Self-isolate – stay home or in your room until 24 hours after fever resolution (without meds)

Cover your cough or sneeze

Take over the counter

medications to ease your symptoms

Drink plenty of fluids to prevent dehydration

Students with influenza-like illness are requested to notify the university by using the self-reporting function at <http://inside.mines.edu/Flu>. Self-reporting is recommended in order to ensure an absence due to influenza is excused.

A doctor's verification of the absence as per existing student absence policies may also be used.

Students who self-report will be contacted by the Student Health Center to check on their illness and to provide recommendations for care. Students living in residence halls who self-report will be contacted by their RA to provide additional information for meal service.

When do I need to see a health care provider?

If you have a chronic illness (such as diabetes, heart disease, asthma or are on medications that might affect your immune system).

If you are experiencing shortness of breath, chest pain, confusion, persistent vomiting, dizziness.

If you have questions go to <http://inside.mines.edu/Flu> or www.cdc.gov/flu

Or call the health center at

Continued from page 6

Each of these issues causes the research to take a loss of efficiency. "We're likely to be around an

optimized system of seven or eight percent," admits Posewitz. "Many current photo-voltaic cells already achieve 15 to 17 percent efficiencies." It may turn out that photosynthesis does not measure up to the extent of our energy needs.

Nevertheless, biology remains an inexpensive means for producing the energy we need. Posewitz and team seek to find that energy by "looking for diesel fuel surrogates, looking for starch we can ferment into ethanol, butanol, or other carbon based fuels, and also looking for hydrogen." Already the team has been able to "pack these algae full of lipids that are just little drops of oil." The ability to produce

these oils in mass quantities would be a great supplement to the energy industry. Yet, it is a different product that the team has great hopes for.

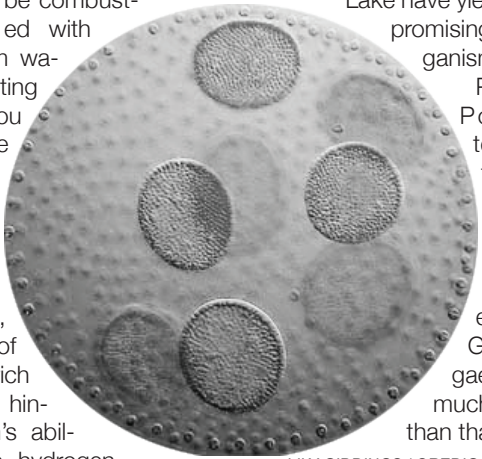
Biology remains an inexpensive means for producing the energy we need.

oxygen to form water, a non-polluting byproduct. "You can combine those elements and you can get a fuel cell, a closed, nice clean loop." Unfortunately, the presence of an oxygen-rich environment hinders the team's ability to optimize hydrogen

production. Too much oxygen will inhibit the enzyme and terminate the reaction.

Undeterred by the problems facing them and hopeful for great applications of their research, the team travels the country in search of new species of algae that may possess just the right combination of genes to make their vision a reality. Already, trips to the Great Salt Lake have yielded many promising new organisms.

Perhaps Posewitz's team and their algae may be the new source of usable energy. Green algae: can't get much greener than that.



LILY GIDDINGS / OREDIGGER

Finding the right fit

Fraternities and sororities recruit for new members

Roby Brost
Staff Writer

For many, the word "Fraternity" brings up images mostly concerned with wild, out of control drinking, rampant debauchery, and the hilariously drunk/inapt John Belushi. And Sorority? The term practically conjures images of "The House Bunny" and cat fights.

This past week, many students were treated to some fun activities and events geared toward revealing the reality of Greek Life on the Mines campus. It quickly became obvious that on the Mines campus, fraternities and sororities appear to be more concerned with academia, community service, and having a good time than with conforming to the low expectations and stereotypes traditionally associated with Greek life.

The seven fraternities and three campus sororities agree that Rush week is designed as a way to introduce the concept of Greek life as well as get started finding the right fit for those interested students. According to Derek Morgan, the main goal is to "...get as many people as possible to go through [Rush Week], and experience it. To not be a victim of media stereotypes, but to go through the process and make that choice for themselves."

From "Beachonary" to Boondocks, to "slip 'n slides" and Fiestas, the fraternities and sororities on campus offered a wide array of experiences to get to know all different types of students interested in pursuing a Greek way of life.

Toward the end of Rush week, once new students and houses got to know one another, the fraternities and sororities put out bids, expressing a mutual interest. As with fraternities, "...The sororities are trying to find who fits best for them, and the recruits are trying to find the best fit amongst the three hous-

es," explained Marie Hornickel. To accomplish this, a "bid matching system" is implemented. David Odean, from Sigma Alpha Epsilon, explained the process quite simply. "If we like them, we give them a bid, if they like us, hopefully they accept that Bid. If they do, then we can start the Pledging process and the new recruits can become members." But don't let the seeming simplicity of the process be misleading. Thousands of hours are spent in preparation of offering those bids.

The ultimate goal, besides informing the student population about Greek life, is to find the best matches possible for both the student and the house. To ensure the best possible match, the different houses spend hours in preparing the specially selected events and seeking one on one time with prospective members.

Even houses with fewer members, like Sigma Phi Epsilon, who numbered twelve members at the start of Rush Week, put in countless hours to make the experience the best possible. "So many hours go into making Rush week a success," said Sig. Ep. member Cameron Afkhami. "I mean, a lot, a lot. During the week, we put in a ton of hours, each guy contributing, on average, over five hours a day before the events."

The sororities start planning for Rush Week 2009 in spring the year before. Part of that planning process is "Polish Week." Brittney Smith, president of Alpha Phi, explains that "Polish Week" "...is where the entire sorority gets together before formal recruitment and prepares together for the events."

However, countless hours of preparation for events is not unusual for the houses that are part of Mines Greek Life. Once the current recruits are initiated and pledged, they too will be part of the planning processes for philanthropies and community service that form an integral part of their community.

During Rush Week, prospective

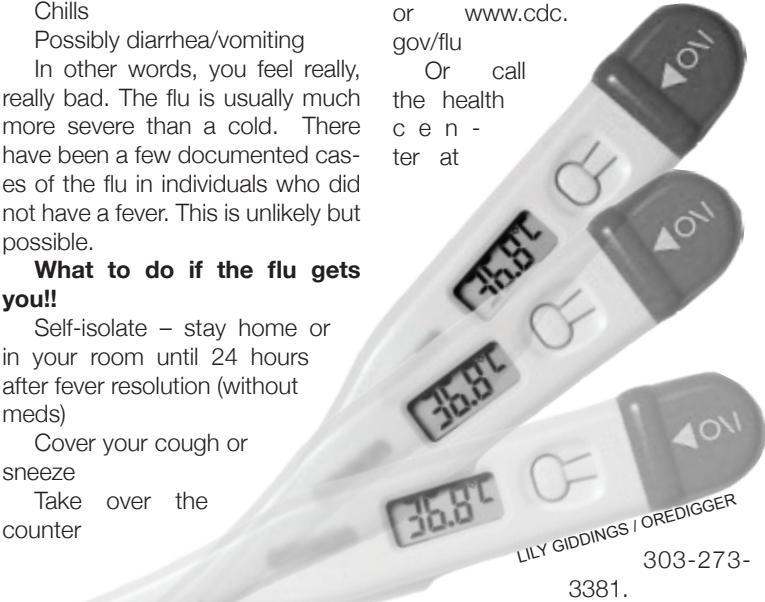
sorority members had the opportunity to make teddy bears to be donated to the Children's Hospital. And that is just the beginning. Every Halloween, the houses host "Trick or Treat on Greek Street," turning their homes into haunted houses and a safe environment for trick-or-treaters. In addition, the FIJI house turns Friedoff Hall into a "great big cardboard box labyrinth," Jacob Ball recalls, for their community service project for children with diabetes. They also think of the important details, like sugar free candy.

Derek Morgan pointed out that much of what attracts students to Greek life is the habit "of doing good things." He guesses that "just looking at the community service hours that frats and sororities have done on campus and in the Golden community, you are talking about tens of thousands of hours in the past few years alone."

If prospective students missed out on Rush Week, there is still ample opportunity to participate in the Greek community. Both the sororities and fraternities on the Mines Campus seem to have an open door policy. Take a walk down Greek street pretty much any day of the week and chances are good that at least one house will be having an open lunch, or an open dinner out on the lawn.

Give any of the sororities a call, and chances are good that you'll have three or four friendly faces to go get coffee or ice cream. Emphasized again and again throughout Rush Week and beyond is the fact that Mines is a tough school. The Greek life provides a great support system, and there are plenty of opportunities to find that right fit.

Not interested in Greek life? "It's not for everyone. And that's ok too," said Derek Morgan. Still, stop by sometime, or participate with the new pledge members at an event they are hosting. After all, as many students found out this past week, Greek life isn't *Animal House*, but a whole different animal altogether.



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303-273-3381.



Happy Hour
M-F 3 PM-7 PM
\$1 Pints
\$2.50 Wells
\$5.00 Pitchers
\$1 Hotdogs

We are on Facebook
Become a Fan

College Nite
Beer Pong @ 9 PM
Thurs & Fri Nites
Win Money & Prizes

Ladies' Nite
Thurs @ 9 PM
Ladies Drink Free

\$5.00 Pitchers PBR &
\$1.50 Pints all the
time

Kareoke Sat @ 9 PM
Specials all nite

\$3.00 Prem Shot
Specials
9 PM-12 AM
excluding Thurs

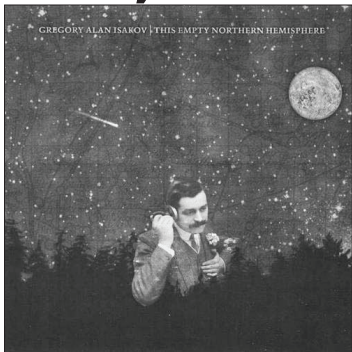
Music Review

Best of Summer

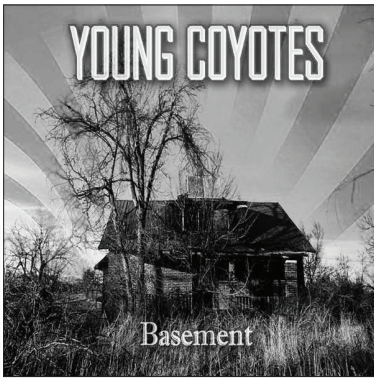
Tim Weilert
Content Manager

This review will be unlike most reviews you read this year in this newspaper. During the past three months I've had the privilege to work with some of the best bands in Denver, here are the highlights. Be sure to check local record shops or iTunes for any of these records.

Gregory Alan Isakov – *This Empty Northern Hemisphere*:
Isakov is a master of his art. The flowing melodies and poetic lyrics of this record play well with his soft voice and choice of instrumentation. A delightful mix of classic Americana-folk and modern singer-songwriter, *Hemisphere* will warrant multiple listens. Listen to "Evelyn."



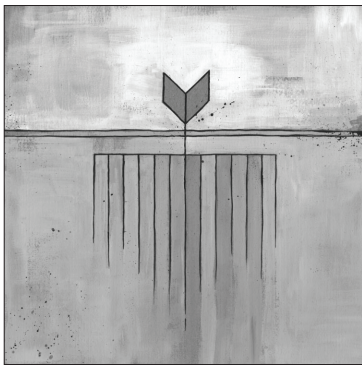
Danielle Ate The Sandwich – *Things People Do*:
The quirky and joyful ukulele backs up Danielle Anderson's hauntingly beautiful voice on this record. Unique delivery and memorable hooks will cause you to fall in love with this Colorado-based YouTube sensation. Listen to "Bribes."



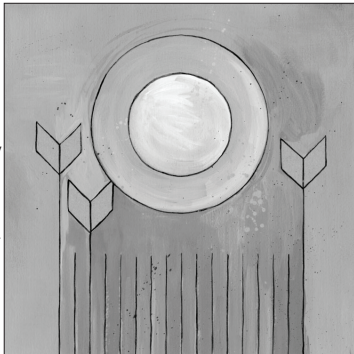
Young Coyotes – *Basement & Exhale* EPs:
Another set of EPs released earlier this year, Young Coyotes keep things simple with basic arrangements (just acoustic guitar, drums, vocals, and occasionally some bells). *Basement* was literally recorded in a basement, but has a certain fidelity and can be downloaded for free on the band's website. *Exhale* showcases the natural progression of this DIY duo's musical maturation. Listen to "Buried."



Everything Absent or Distorted – *The Great Collapse*:
This 2008 album from one of Denver's wildest bands stands as a testament to what 7-man bands can accomplish. Sadly, this group (which has drawn comparisons to Arcade Fire and Neutral Milk Hotel) will be calling it quits on October 24 at the Bluebird. Listen to "Japanese War Tuba."



Houses – *Spring & Summer* EPs:
Fans of classic rock (or great music in general) will appreciate Houses' first 2 releases on their 4 disc journey through the seasons. *Spring* has a mellower vibe with flowing instrumentals and sing-a-longs. *Summer*, on the other hand, swings more toward driving guitars and reminiscing about sunny afternoons. Listen to "We're Alright."



PHOTOS COURTESY OF THE RESPECTIVE BANDS

Movie Review

Inglourious Basterds

Erin Stephens
Staff Writer

Inglourious Basterds is the newest film directed by Quentin Tarantino. Similar in many ways to Tarantino's *Kill Bill* and *Pulp Fiction*, *Basterds* is a neo-contemporary film. Described by the director as a "spaghetti western," *Inglourious Basterds* follows the brutal exploits of a Jewish-American infiltration team through German occupied France.

The opening sequence of the film is deceiving; the sequence implies a serious documentary about the moral conflicts of the French people during German occupation. At least until the shooting starts. In his first scene, Tarantino introduces two of the main characters, and in classic Tarantino fashion, kills some extras whose too-red blood spills across the screen.

With the first scene establishing the style of the film, the movie progresses to a CIA team: the eponymous "Inglourious Basterds." The Basterds, led by Lieutenant Aldo Raine (Brad Pitt), scour the French countryside, scalping any Nazi soldiers they

come across.

Even though he deviates from actual history, Tarantino intrigues the audience with his unruly band of crazed Nazi hunters. The plot progresses much like that of Tarantino's former hit film, *Kill Bill*, vol. 1 and vol. 2, in chapters distinctly separating each key point. *Inglourious Basterds* also mimics the gore of the *Kill Bill* movies; instead of the katana used by *Kill Bill*'s 'the bride,' Lt. Raine uses a wicked scalping knife.

As usual, Tarantino selected a remarkable cast. Brad Pitt is without question the biggest star in film; and he plays the roll well. No one would expect the first half of Brangelina to put on a hick accent and play the unscrupulous, part-Native American scalper. Pitt aside, the rest of the cast measures up to top Hollywood standards. Diane Krueger, one of the stars of *National Treasure*, makes a great addition as the German traitor. Perhaps the best acting came from Christopher



Waltz, who plays the despicable German Colonel Hans Landa. French actress Mélanie Laurent, who plays Shosanna Dreyfus, a Jew whose family is killed by Landa, also puts in a wonderful performance.

Basterds is a startling contrast to another recent WWII movie, *Valkyrie*. While Tom Cruise plays a serious Colonel in a serious film, Brad Pitt plays an abrasive redneck in a gory comedy. *Inglourious Bastards* may be a nicely publicized summer film, but can easily be criticized for its lacks of depth and morality, something which might help a movie about WWII.

Inglourious Basterds recommends itself as an entertaining twist on a horrific war, but only for the strong of stomach. Should blood, guts, or swastikas carved into flesh bother you, hold the Basterds, and move on to *Saving Private Ryan*.

4.5 Stars out of 5

Cooking Corner

Tim Weilert
Content Manager

This summer I did a little experiment: go vegetarian for a month. The experience was not necessarily difficult, and provided some interesting insights into the veg life (social/cultural reactions, finding meal options when dining out, and discovering new recipes). Throughout the month-long experience I worked the kinks out of the following recipe for a Middle-Eastern favorite: falafel.

Ingredients:

- 1 Can garbanzo beans, 15 oz., drained (aka chick peas, I prefer the Bush's brand)
- 1 Medium onion, finely chopped
- 1 Clove garlic, minced
- 2 Tablespoons fresh cilantro, finely chopped
- 1 Teaspoon cumin
- 1/2 Teaspoon salt
- 2 Tablespoons flour
- Vegetable oil (for frying)

Procedure:

1. Cut your vegetables (onion, garlic, and cilantro) into small pieces. These should be very fine cuts with small pieces resulting.
2. Combine all in-

gredients in a large mixing bowl. Mix and mash chick peas using a fork.

3. Once all individual peas have been mashed, the mixture should have a thick consistency that begins to ball naturally.
4. Make several ping-pong sized balls with the mixture (this recipe usually yields 9 balls).
5. In a large frying pan, fill with 1/2 inch of vegetable oil, heat over medium-high heat.
6. Once the oil begins to wisp smoke, toss the falafel in, turn occasionally using tongs until out-sides are golden brown.
7. Remove from oil, let cool on a plate with a paper towel.

Serving Suggestions:

Falafel is commonly served with pita bread, lettuce, tomatoes, and tahini sauce. I found a makeshift tzatziki sauce (a combination of sour cream and dill weed) and hot sauce also go quite well with this crunchy sandwich.

Serves 2-3



Get your money's worth at Career Fair this year

Nick Libertini
Staff Writer

Many students are anxious to secure a job or internship in this weakened economy. With Career Fair coming up, I am going to pass on a few tips that will help you assess the financial health of potential employers, for evaluating job offers, and negotiating the perfect salary. Sifting through all the companies that attend the Career Fair can be a daunting task. Although you may have a reasonable idea of what type of work you are interested in, how do you know if these companies are financially fit enough to hire you? You might think company would not show up at the Career Fair if they were not hiring and they certainly would not hire you just to lay you off! This isn't always true. I was hired by an engineering firm this summer,

Never talk money in an initial or follow up interview.

only to see the company downsize their staff by 20%, just 3 weeks after I signed on! A stable yet lucrative job or internship is becoming harder to find these days, so here are a few aspects to consider in a company:

Ask about how many new employees they have recently hired and how many they intend on hiring in the next few months. This shows their hiring patterns during tough economic times. As for internship seekers, really prod the recruiters about their expectations for their intern program this coming summer, this will lend insight into how serious they are about hiring a person with your qualifications.

Inquire about the employee turnover rate at the company. Some big firms will dump off personal when the going gets tough.

Ask about the company's 401(k) employee contribution matching. A company that matches employee contributions values their employees and rewards them. You can

use the percentage that a company matches as a barometer for their financial stability. A company that matches 6% of an employee's salary has to carry a lot of cash on their books, thus they are likely to be more financially robust than a company that only matches 1% - 2%.

Check some financial ratios for publicly traded companies online. Some insightful ratios to look at are their current ratio, their acid-test ratio, and their debt to equity ratio. The current ratio tells you how well a company can meet its short term financial obligations. The higher the current ratio the better. The acid-test ratio is a more rigorous test of a company's ability to meet its short term debt obligations. Again, look for numbers over one. Lastly, a company's debt to equity ratio is a good indication of how much the company relies on debt to finance its assets.

Too high of a ratio means that the company relies heavily on debt and could face long term solvency issues. The debt to equity ratio is industry dependent, so use other companies' ratios in the industry to judge whether the company you are researching is too heavily leveraged with debt.

Consider the relative cost of living. A \$65,000 a year salary in Denver is equivalent to a \$106,725 a year salary in New York City concerning buying power (Salary.com).

Look at the company's benefits (health, vision, dental, life and disability insurance) and bonuses. You will be better off taking \$50,000 a year with full benefits and a small bonus than \$75,000 a year with no benefits or bonuses.

Let's talk money! Assume you found a good company and you are thinking about the salary. Never talk money in an initial or follow up

interview (unless prompted to by the interviewer)! Demanding the big bucks in an interview will almost certainly hurt your chances of landing a job. Wait until the company extends you an offer to begin salary negotiations. You can use any number of online salary wizards to find what other companies in industry pay. Armed with this knowledge, here is a guide for how you should proceed in your negotiations:

Be clear that you want their absolute BEST offer. If you have other competitive offers communicate that in your negotiations. If the company has already disclosed the dollar figure for your offer, you might try saying "I really appreciate your offer. However, I am considering several other offers and I was wondering if this is your best possible offer?"

Prepare a formal document that you can bring to the negotiation that illustrates the average salary of the position/ industry you are considering as well as salary trends in the region that the company is located. This will show the company that you have done your research and you truly value your skill set.

Finally, don't push too hard in your negotiations. Being a Mines student/grad makes you highly competitive, but you are not god's gift to engineering. Taking a good job with a reasonable salary and then letting your performance catch your boss' attention is a far more desirable situation than demanding six figures and getting passed up for some CU grad who is willing to work for beer and cold pizza.

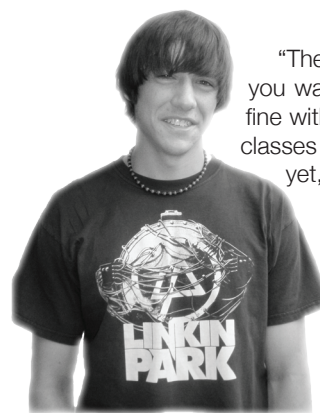
Good luck at the career fair, don't forget to wear a tie, a belt, and matching socks. Ladies, I'm sure you'll look great, it's the men I am worried about. I'll see you next week for a brief discussion of 401(k)s, IRAs, and other retirement saving accounts.



Minds at Mines First Impressions

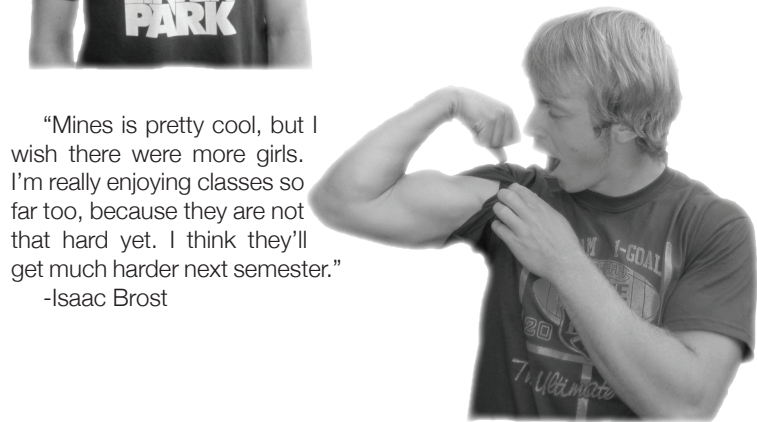
Roby Brost
Staff Writer

Despite the somewhat infamous lyric; school is *not* out forever. Once more, this truism is proven false, at least for some new students as they leave the laid back days of summer for the classrooms and lecture halls of the Colorado School of Mines. Certainly, some things may be new, like the paved walkways, the new configuration of the Slate, or a new face occupying that coveted window seat. But the change brought about by the new influx of students, 885 new Freshman alone, is as ever, constant. This week, Minds at Mines takes stock of first impressions after the first full week of school.



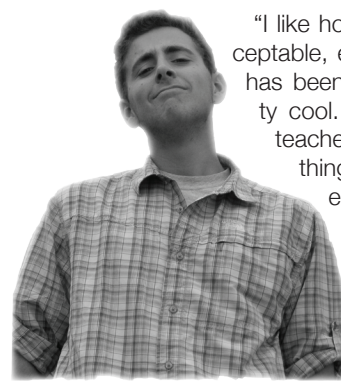
"There's more freedom here. You can do what you want, when you want. Which is working just fine with my classes so far. And I'm okay with my classes too. I mean, I don't hate any of my classes yet, but I'm not super enjoying any of them yet either. It's too soon to tell."

-Adam Bent



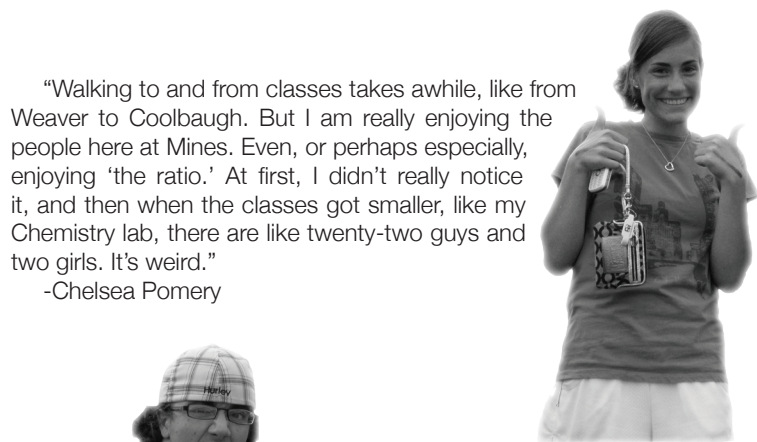
"Mines is pretty cool, but I wish there were more girls. I'm really enjoying classes so far too, because they are not that hard yet. I think they'll get much harder next semester."

-Isaac Brost



"I like how a nerdy sense of humor is totally acceptable, even expected here. Also, the free food has been pretty great. All around it's been pretty cool. Classes aren't really hard yet and the teachers are nice. That's one of the really great things; some of the professors are really energetic. They are so knowledgeable, and enthusiastic about their subjects... But then again, we haven't gotten our first exam yet. That's how you really know that you've arrived at Mines. When you get your first test."

-Andrew Dreann



"Walking to and from classes takes awhile, like from Weaver to Coolbaugh. But I am really enjoying the people here at Mines. Even, or perhaps especially, enjoying 'the ratio.' At first, I didn't really notice it, and then when the classes got smaller, like my Chemistry lab, there are like twenty-two guys and two girls. It's weird."

-Chelsea Pomey



"It's easier to get around campus on a scooter. It's a lot of fun. I like it, but it's not what I expected. Things like playing Frisbee; I play Frisbee out here all the time, and that's not something that you expect of the Mines campus. Also, the M climb wasn't what I expected. But it sure worked out nicely for the underclassmen."

-Mitchell Schaeffer

ALL PHOTOS ROBY BROST / OREDIGGER

Tim's two cents

Breaking down journalism myths

Tim Weilert
Content Manager

The school year is upon us once again and the campus is overrun with fresh faced students in search of some variety of activity. Well, dear reader, you happen to have picked up the most recent edition of *The Oredigger*, a publication of one of CSM's oldest and most influential clubs.

As engineers and scientists, we all thrive in environments where knowledge and ideas can be easily exchanged. As a newspaper journalist, it is then my responsibility to ensure that the content provided in the subsequent pages accurately and objectively reflects the truths of reality.

As a way of saying, "Consider joining our cause," here are a few

answers to common misconceptions and questions.

"I don't have enough time"

There are 168 hours in a week. Take out time spent eating, sleeping, and studying, and you've still got quite a few left in there. The fact of the matter is that even with the busy Mines schedule I (and most of the rest of the staff here) manage to keep up with classes and participate in other clubs and organizations on top of our newspaper duties.

"I've never written for a newspaper before" Writing is one of those fundamental skills that can only get better/easier with practice. From what I've seen (in both my own writing and that of my staff), is that once you develop a journalistic writing style assignments (both for the paper and for classes) become easier and can be done more

quickly.

"The newspaper format is dying" While this may be the trend nationally, we have taken steps to ensure that our content remains relevant in the post-paper world. Through our online outlets www.oredigger.net and www.minesblog.com, we reach a broader, more sophisticated audience with more content than the traditional newspaper print edition can hold.

Editorials Policy

The Oredigger is a designated public forum. Editors have the authority to make all content decisions without censorship or advance approval and may edit submitted pieces for length so long as the original meaning of the piece is unchanged. Opinions contained within the Opinion Section do not necessarily reflect those of Colorado School of Mines or The Oredigger. The Oredigger does not accept submissions without identification and will consider all requests for anonymity in publication on a case-by-case basis. Submissions less than 300 words will receive preference.

Football aims for championship

Coach Stitt previews the upcoming football season



Jake Rezac
Content Manager

After last year's successful 8-4 season, Oredigger football is once again in full swing. The team hopes to improve its play from last year and have a particularly good season within the Rocky Mountain Athletic Conference (RMAC). Head Coach Bob Stitt has high expectations for his team this year.

"I think we're going to have a very good football team," Stitt said. "[Our goal is] playing good every week. We had some mental let-downs last year, and we want to avoid them this season."

The team received a number of accolades in the off-season, including being ranked second in the RMAC preseason coach's poll and receiving votes in the American Football Coach's Association preseason Top 25 poll. Senior quarterback David Pesek and junior defensive lineman Marc Schiechl were also awarded preseason honors, being named RMAC preseason Offensive Player of the Year and Defensive Player of the Year, respectively. According to

Coach Stitt, these honors don't put any undue pressure on the team.

"We'd love to come in under the radar," Stitt explained, "but once you go into conference play, everyone knows what everyone else is capable of...we want to play well every week."

In their first game, which was August 29 against Washburn University, the Orediggers took a tough 27-14 loss. Despite the loss, Stitt said the team took away some good lessons from the game.

"Washburn's a good team," Stitt said of their opponent.

"We played well, we just made some mistakes that could have been avoided."

Pesek completed 35 of 44 passes for 227 yards and one interception against Washburn. Redshirt freshman Cody Renken caught 13 passes

for 72 yards, one pass shy of the all-time Oredigger record. Running back Jahre Cheese-

Renken tied the all-time Oredigger record for number of catches in a game, with 14, going for 132 yards.

man rushed for 56 yards. Line-backer Alex Vigil led CSM's defense

with 9 tackles and three other players each had 8. Mine's second game, at Fort Hays State, ended in a 31-21 loss. Pesek was 34-55 on passing for 376 yards. Renken tied the all-time Oredigger record for number of catches in a game, with 14, going for 132 yards. Receiver Adam Saur also had a good game, with 136 yards on 9 catches.

The Orediggers start RMAC play next week, playing at Western New Mexico. On September 19, the team returns to Brook's Field to play Fort Lewis. The Orediggers will play Western State on October 10 for the Homecoming game. The Orediggers will play Western State on October 10 for the Homecoming game, and rivals Chadron State come to town on October 24.



PHOTOS COURTESY OF MINES ATHLETICS

Record numbers

IM Sports sees boost in players

Benjamin Johnson
Staff Writer

Following a year that saw record participation, Intramural Sports at CSM is headed for another record year. The most popular sports, flag football, basketball, and indoor and outdoor soccer have already drawn substantial interest from returning students and incoming freshmen. Flag football, for which registration has ended, maxed out all of the available divisions with a record of 67 different teams that applied.

Basketball and soccer are both expected to parallel flag football in their success with registration occurring later in the year. There has been an estimated 15 to 20 percent increase in the number of participants each year in Intramural sports. Last year there were over 5,400 participants.

Registration is currently underway for the Golf Scramble at the Arrowhead Golf Club, one of the top ten most photographed golf clubs in America. The Scramble is a regional qualifier that will send the top team from CSM and the top student team overall to the final tournament in Las Vegas, Nevada. The winning student team and CSM team also receive a \$750 stipend to cover expenses incurred during the trip. Registration ends September 10 and the tournament will be held October 1 with a start time of 8:30 AM. Both students and faculty are encouraged to participate; however, the tournament is expected to have a proportionally higher number of students than faculty.

As a program that has continually tried to improve, CSM Intramural sports, directed by John Howard, made several changes to the department with the de-

sire to enhance student participation in the sports. One of the most popular changes was the addition of statistics, standings, and time of the event on the recreational sport website.

Eleven-by-eleven soccer was a trial sport last year and will be continued again this year; Howard said, "The feedback for the new intramural soccer was really positive, people who have played the traditional form (11x11) all of their lives especially enjoyed the addition of this sport."

Another of the most noticeable changes is the removal of ties from floor hockey and indoor and outdoor soccer which "removes all confusion in the standings when it comes time for the playoffs," said Howard. All of these changes as well as outdoor

scoreboards and a new building have propelled CSM Intramural sports to record numbers in participation each year.

In the future, there will be online registration for all of the sports "so people don't have to come in and get a form and then come back in [to the Student Recreation Center] to drop the form off," commented Howard. The goal for the department, Howard said, has been and will continue to be to "focus on putting out a great product for the students and put out our best effort so that students will have a good time playing Intramural sports."

Howard encouraged students to not only remain safe but to "learn teamwork, camaraderie, take a break from school, and just have a lot of fun." Students are encouraged to offer feedback to Howard

or anyone associated with Intramural sports about the existing sports, their rules, the structure of the schedule, or new ideas for more sports.

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Econ lecture: Ad singularity

Janeen Neri
Singular Economist

Experts are bracing for what may be the biggest turning point in the world economy and, possibly, the demise of the internet. "This is more alarming than global warming," said guest lecturer, Dr. Stephen Chan. What has them worried? The "Singularity of Free." Explained Chan, "The singularity, in our field, is when advertising feeds back on itself so much that there is a complete disconnect between where the money goes and where the product comes from."

To illustrate the problem, Chan invited the audience to imagine two websites, Timmy's blog and Bill's social network. Both of them are completely ad-supported, receiving \$2 each time someone clicks on a banner ad on the top of their respective home pages. To get more traffic, both sites decide to advertise their services through an ad-serving company, Adtrap. Each agrees to pay \$3 every time someone clicks on an ad for their site. Now, if these were the only two websites on the internet, there's an obvious problem with this arrangement. Timmy's ad is placed on Bill's website, and Bill's is placed on Timmy's. Every time someone clicks on Timmy's ad, he pays \$3. Two of those dollars go to Bill, and one dollar is Adtrap's placement fee. The only people who make money, in the end, are Adtrap and whoever has the most visitors *leaving* his site.

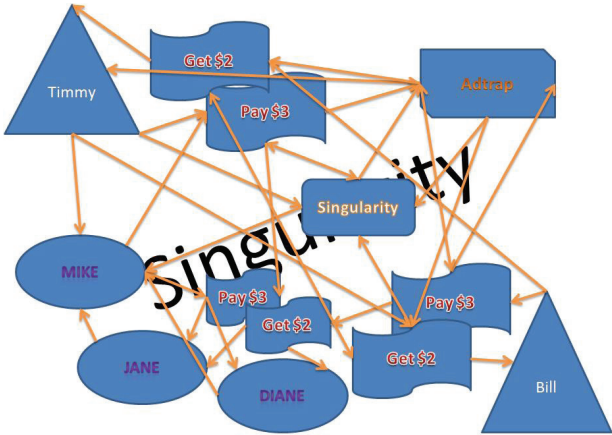
But that is only in the short run.

Suppose the ads on Bill's site get more clickthroughs than the ones on Timmy's. Bill makes a \$2 profit on each click, Adtrap makes \$1, and Timmy loses \$3. Eventually, Timmy realizes that he is losing money, and he stops advertising his blog or shuts it down completely. Now, Adtrap has no ads to serve for Bill's site, so though his social network made a small initial profit, he can no longer cover the cost of maintaining it. At last, Adtrap itself must either shut down or move to print media, and the "free" ad-supported model dies.

"Now imagine that," Chan continued, "on a global scale. It's even more insidious because of its complexity – no one can make enough sense of the network of ads to realize when the bottom has fallen out; when all the way down a given chain, only ad-supported sites exist." Chan and his colleagues have come up with a crude estimation,

however. "You know you're close to an inflection," said Chan, "when it's possible to begin at one site, click only ads, and return to the original site without visiting a single site that requires the user to pay for its services." Using this method, the researchers found that an alarming 68% of websites are on the brink of the singularity.

"What happens when a major site, such as Jay Is Games, hits the point of collapse?" Chan said, "We really don't know for sure. Perhaps nothing will happen. The market could adjust, more sites switching to a partially ad-supported system and selling t-shirts and stuffed mascot-beasts on the side. But if there's one thing we can see from the computer age so far, it's that sometimes the market isn't nimble enough. And it is that one 'enough' that stands in the way of a global cataclysm on par with the fall of Rome."



JANEEN NERI / OREDIGGER



Replacements for the Hall of Justice

Tim Weilert
Construction Consultant

10. Jump Street
9. Another Coors lab
8. An endless abyss
7. Hall of Injustice
6. Batcave
5. Parking? We don't need more of that.
4. Oil derricks
3. ASCSM Offices
2. Dirt farm
1. Brown Building extension

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